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Contributions to Bee Culture in Cottage Hives.

No. 1.

While thus submitting the first of a brief series of articles on this topic, I would candidly admonish my readers that I have no expectation of being able to furnish them with anything specially novel or striking. At the same time I would request them to acquit me of the vanity of conceiving that I am one of the shrewdest among bee-keepers, and thus authorized to assume the position of an instructor. On the contrary, I verily believe there are many practical bee-keepers much shrewder, more competent, and of larger experience than myself. I am content, in the hope of being useful, to occupy an humbler rank. My desire is rather, by these contributions, to induce others to communicate, for our common benefit, some detailed statement of their views, experiences, processes, and manipulations. For I apprehend that in these periodicals, bee-culture as it has been, is, and must long continue to be practiced with common hives among the common people, is equally entitled to investigation and discussion, as the new method aided by movable comb hives and the Dzierzon theory. Even admitting that those who have for many years used the common straw or box hive, have long since become experts in practice, and have attained to such advances in knowledge and experience, that nothing remains for them to learn from one another—which is hardly a supposable case—there are still among the readers of these papers, a large number of new beginners, and of practitioners of limited experience, to whom it will be decidedly advantageous to have many matters described and discussed with minuteness and simplicity, which older apiarians may regard as thoroughly settled and universally known. Though the old practice of dealing in *secrets* and *mysteries* has largely gone out of vogue in bee-culture, as in other branches of human handicraft, there are yet here and there

some ancient bee-masters who withhold what they know, and cannot bring themselves to find their richest recompense in imparting freely to others the acquisitions of their experience. Hence beginners are oftentimes nonplussed in their efforts and discouraged. They have heard, as it were, the tinkling of the bell, but cannot ascertain distinctly whence the sounds proceed or what precisely they betoken. The result is not unfrequently perhaps, that because of some slight mistake or inadvertence, the novice encounters disappointment and failure, in an operation which properly conducted would have been a gratifying success, cheering his heart with delight and encouragement.

The chief reason perhaps, why so few of the bee-keepers of the country—though there are among them many successful bee-masters—write for the *BEE JOURNALS*, is the fact, that with rare exceptions, their education was limited to what *was* taught in our common schools when they were young, and they are thus unpracticed in the “art and mystery” of literary composition. Even some of the more advanced among them, well qualified to furnish instructive communications, dread, if they should chance to express themselves awkwardly, being laughed at and ridiculed as belonging to that class of hopeful aspirants who are cursed with the scribbling itch without being blessed with the faculty of scratching themselves with a good grace.

But, worthy co-laborers in bee keeping, let us not be deterred by such apprehensions from contributing our mite for the advancement of bee-culture. Rather let us compare those who would look down so contemptuously on our humble efforts, to the butterfly in the fable, which, arrayed in gay and gaudy colors, as it fluttered among the flowers regarded with disdain the busy inconspicuous bee that was so assiduously appropriating the nectar. Yet the bee could display in her home, works surpassing the architect's skill and treasures challenging the miser's envy, while the gorgeous butterfly had not even a cranny it might claim as a home. Thus let the true bee-keeper seek to show his competency and skill by the flourishing condition of his apiary, leaving sequestered

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lian words and fine-strung sentences to those who admire them.

Taking time by the forelock, so as to be ready for possible emergencies, let us suppose that the rigor of winter is over, that spring is approaching, and that in some of our hives supplies are running short. The question now arises what is the best mode of curing the evil? Prevention, indeed, would have been the better plan; but it is all too late now for that, though by way of caution for the future, it may not be amiss here to impress it on the beginner not to undertake to winter stocks inadequately supplied, if he can possibly avoid doing so. If he has a number of stocks from which to choose, let him select for wintering only those that are populous and have plenty of sealed honey in the combs. From all the weaker colonies, the bees should be driven out as soon as pasturage begins to fail, and the hives with the combs and honey they contain should be reserved for the use of early swarms in the spring, if pressing necessity do not require them to be otherwise used before that time. There is ever a strong temptation besetting the novice in bee culture to retain every colony he has on the stand, however feeble and unfurnished. Number has usually more charms for him than quality, as it aids better in making a display, and he feels a pride in showing how rapidly his apiary is growing. This is a sad mistake. In poor seasons indeed it is not always easy to select the stocks best fitted for wintering, but it is better to discard all those about which doubt may be entertained, and err if at all on the side of safety. Moreover, when it seems likely that any stock we desire to winter may need feeding, it is best to give it the necessary supply in the fall; and if liquid honey must be fed, it should be given so early and in such quantities that it may be promptly carried up and sealed in the cells. The amount consumed is not the same in every winter. In long winters with changeable weather, enabling the bees to fly out frequently, their stores will be rapidly diminished and there is danger that they may be wholly exhausted. Experience has shown also that among colonies equally well supplied, some will begin to be in want a month sooner than others, owing principally to a difference in the amount of population or more frequent disturbance. Nor is the quality of the honey equally good every year.

From all this it is manifest that it may happen to even the most circumspect bee-keeper, especially after poor honey seasons, that some of his stocks will need feeding towards the end of winter. Where cottage hives are used, it is not so difficult as many suppose to ascertain the state of the supplies at the approach of spring. Select a fine, bright, clear morning after a cold night, and if there has been a severe frost, all the better. In turning up the hive, its weight already will give the bee-keeper a pretty good idea of its contents. But as the bees are then still clustered in a compact mass, it is easy to see and judge of the quantity of sealed honey remaining, if the hive be so held or placed that the sun's rays may shine down between the combs, and an accurate knowledge of the strength of the stock may thus at the same time

be obtained. A beginner, who fears to trust his inexperienced eye, may probe the combs where the sealed honey ought to be, with the point of a long carving knife or a slender pointed rod, and the same means may be used, for the like purpose at a later period, when the bees have already increased and spread so as to cover the combs. If at the first revision all the weaker stocks be marked, it will subsequently be necessary only to keep an eye on those.

The question now arises, in case supplies run short toward spring, shall *feeding* be resorted to, or *transferring*? On the whole, according my observations and experience, I prefer the latter, where the bee keeper is prepared to resort to it.

Feeding, in the months of February or March, is troublesome, expensive, often uncertain or precarious, and not unfrequently decidedly disadvantageous. It is troublesome, inasmuch as in those months the feeding box may not simply be set in the hive as at other times, but must be placed and secured in immediate contact with the combs directly below the clustered bees. If not thus placed and secured, the bees may neglect to descend and appropriate the offered boon; or if they do come down, they may become so chilled that many will be unable to return and rejoin the cluster, and thus infallibly perish. Some beekeepers, indeed, fill up the empty space between the feeding box and the combs, with hay, moss, cotton-waste, or other substances, or place a heated brick in the hive—though the latter occasionally proves to be decidedly injurious. The better plan, in any case where the apiary is near the dwelling house, is to remove the hive, after introducing the food, into a dark chamber, moderately warmed, and let it remain there over night. Feeding is expensive, because the bees will thus consume at least twice as much honey, as when depending on their own stores. It is precarious, because in very cold weather, the bees may fail to resort to the food, and perish notwithstanding it was provided for their use. But both trouble and expense might be disregarded, if it were always certain that fed colonies would subsequently thrive the better for such provident attention. But this is not commonly the case, and hence feeding is not unfrequently found to be disadvantageous. The introduction of the food, and the disturbance inseparable therefrom, causes the bees to uncluster, to consume honey inordinately, to fly at unseasonable times, and to commence brooding prematurely. If confined by stress of weather, they become diseased, and dysentery sweeps off thousands more than the early maturing brood can replace. If the weather permit them to fly, the odor of the honey on which they have fed, will attract bees from stronger stocks, and thus expose them to be robbed and ruined. The case is very different where a colony in need of supplies, can be at once transferred to a stored hive reserved for their accommodation—as will be shown in a future number.

H. SCHULZE.

SEND us the names of bee-keepers, with their Post Office address.

[Translated for the Bee Journal.]

Dr. Landois' New Theory.

According to Dr. Landois, sex in insects is not determined already in the egg when it is laid, but becomes so subsequently by the quality and quantity of the nutriment which the larva receives when disclosed from the egg. Individuals richly nourished, he conceives, will become females, while those poorly fed become males. Were this so, then in years of scarcity, when large numbers even of the human family are necessarily put on half rations, all the insects then bred would necessarily be males, and the entire race of bees must long since have become extinct, from the exclusive production of drones. Thus the views of Dr. Landois are at once seen to be erroneous, and inconsistent with the wise arrangements of Providence as displayed everywhere in nature. But in the special case of bees, the error is so palpable, that it cannot fail to be detected on the slightest examination. No one will, of course, for one moment think of testing it by repeating the experiments which Dr. Landois professes to have made, with such wonderful results. Indeed, he cannot well have made them himself, or, if he attempted to do so, was surely outwitted by the bees.

The fact that when the eggs have once been laid, the sex of the bee to be hatched from it, is already unchangeably fixed therein, and that neither cell nor food can subsequently exert any influence on it in this respect, may readily be ascertained by a much more simple method. Nay, the bees themselves are very frequently demonstrating it by their own operations. It is well known that queenless bees will endeavor to rear queens from drone eggs or larvæ, when worker eggs or larvæ are not within their reach. They enlarge the cell and supply it lavishly with food for the nourishment of the proposed embryo queen. But no queen is ever produced by the process; though, if Dr. Landois were correct, failures could not possibly occur. Again, a young queen remains unfertilized, because she is unable to fly or was bred late in the fall when no drones survived. In the following spring she will lay eggs regularly in worker cells; and she does so because, at that season and while the population is still weak, she strives to produce workers only, and the workers themselves then certainly do not desire the production of drones. Yet drones, and drones only, invariably proceed from those eggs. How can Dr. Landois explain this, on his theory?

No, when the egg is once laid, the sex of the bee thence proceeding is certainly already unalterably determined. I am fully persuaded that no subsequent artificial impregnation can effect a change, because it has then already lost all capacity for impregnation, as the micropyle becomes immediately closed, and the entrance of spermatozoa is forever barred. The size of the cell and the abundant or scant supply of food can only effect the more or less perfect development of the body and its organs, determining only whether the product shall be a perfect, a crippled, or a partially developed insect.

That external causes, and among them the food, should influence the color of the bees; and that, for example, Italian bees bred in elevated situations should be lighter colored than those bred at a lower elevation, as has been alleged by some, I will not undertake to deny, though I incline to doubt it. The opinion may be based on mistake or misconception. Italian bees adhering to a comb certainly appear brighter, when there are among them many young ones, quite recently emerged. Climatic influences, however, would require a longer time to exhibit an observable effect. A rapid modification of color might find its solution in an unperceived change of queen. But it would, at the same time, show that the bees under consideration are no longer pure Italians, or of a uniform and stable type. Among my bees at least, the color of the pure Italians continues always and uniformly the same, however much the nutriment of the bees may differ, in kind or quality, at different seasons. DZIERZON.

CARLSMARKT, May 26, 1867.

[Translated for the Bee Journal.]

Advice to Beginners.

When, on revision of stock in the spring, a colony is found to be queenless, it is not worth while to attempt to preserve it, unless a fertile queen can be immediately introduced. When this cannot be done, the most advisable course is to drive out the bees, and unite them with some colony, otherwise in good condition, though weak in numbers.

It is equally bootless to endeavor to build up a colony again, which has become weak and queenless from over-swarming. By the time the last after-swarm has issued, nearly all the brood in the parent hive will have matured and left the cells; and though a fresh supply of brood be given, the stock will have become so depopulated, before a queen can be raised and the young bees emerge, it is scarcely possible for it to recover, without continual nursing and reinforcement, so as to be in a condition to winter safely, unless there happen to be abundant pasturage late in the fall.

It is hence a very great advantage to keep constantly on hand in the apiary, a number of nucleus colonies in movable comb hives, of a size just adapted to accommodate six or eight combs with an adequate number of bees. The construction of such hives is simple and inexpensive; and in them colonies can be conveniently and safely wintered, when placed in a dark and dry cellar. There is so little trouble or difficulty in wintering such colonies that they cannot be too highly recommended for the use of beginners, especially in connection with their ordinary stocks. Though no queenless stocks be found in the apiary, it will be an obvious benefit when we come to make artificial colonies, to be able, while one portion of the hive to be divided retains the queen, to give to the other one already fertile taken from a nucleus colony.

To produce such a queen-raising stock, we close the entrance of a nucleus hive with wire cloth, insert two empty combs, with one containing eggs and unsealed brood, and one with honey. Then, about noon, when the bees are flying briskly, we lift out several combs of a populous stock, and shake off the bees into the nucleus hive—first ascertaining that the queen is not among them. We then immediately close the hive, and set it in a cellar or some cool dark chamber. Some water should have been poured in the cells of the empty combs, to prevent the destruction of the larvæ while the bees are kept confined. Next morning the nucleus may be carried to the apiary, and set in any desired position. The bees when liberated, by removing the wire-cloth from the entrance, will mostly adhere to the nucleus, as the greater portion are young and attached to the brood. But should too many leave, a fresh supply may be added next evening from one of the full stocks. On the third or fourth day after, the nucleus is to be opened and examined, to ascertain whether any or how many queen cells have been started. And on the eighth or ninth day as many additional nuclei are to be fitted up and stocked with bees, as you have supernumerary queen cells to dispose of. These nuclei are also to be set in the cellar over night, taken to the apiary next morning, and a queen cell inserted in each, from the first formed nucleus. Weak colonies and late swarms may also be advantageously used for the formation of such nuclei.

These nuclei, or small artificial colonies, as they may be called, must of course be kept under constant supervision, to be certain that the young queens have become fertile, or have not been lost on their excursions. In the latter event, a small piece of comb containing unsealed worker larvæ, should immediately be inserted, to prevent the origination of fertile workers, because when such arise and begin to lay in a nucleus, the bees will neglect to rear queen cells from brood subsequently given, and will even destroy any sealed queen cells that may be inserted.

If these nuclei are made to supply two or three fertile queens, in regular succession, in the course of the summer, they will have sufficiently answered the purpose for which they were established. They cost very little, as they will generally gather honey enough to supply themselves; and commonly build several beautiful worker combs in addition, if empty frames are inserted at the proper time. If, however, they chance not to lay up stores enough to carry them through the winter, they should be abundantly fed early in the fall, and in due season placed in a dark cellar, where they can remain for months in quiet, consuming comparatively little honey.

To gain as much time as possible in these operations, one or two of the nuclei should be *unqueen*ed eight or ten days before the queen cells in the remainder are intended to be used. Queen cells will then be immediately started in those thus made queenless, enabling us to insert a sealed queen cell without loss of time in the nuclei which are afterwards deprived.

A much more rapid and surer multiplication of stock can be effected by this process than by that commonly adopted; and we shall always be in a position to relieve and save a colony which happens to become queenless, by the prompt introduction of a fertile queen from the "reserved fund," in our nuclei. This further benefit is likewise secured that the beginner will speedily become familiarized with his bees, by the frequent operations which the maintenance of those diminutive stocks necessarily requires; and as the bees thus managed, are ever more tractable than those of large and populous hives, he will soon learn to handle them without apprehension of being stung. The dread of the bee's sting oftentimes causes needed operations to be postponed, or wholly neglected. The sooner the beginner overcomes this dread the better; and nothing can contribute more to inspire him with courage and confidence than the systematic use of such nucleus colonies. So long as bee-caps and rubber gloves are deemed indispensable in his manipulations, he may not hope to derive much pleasure or profit from his bees.

DR. BLUMHOF.

BIASCA, May 14, 1867.

Do King-Birds Eat Honey Bees?

A writer in the Northern New York *Journal* is inclined to think that they do not, and that their character has been unjustly aspersed. His theory is that they eat the drones, but not the workers. He says:

"To fully satisfy myself that this bird when so engaged, feeds only upon the drones, I have watched from a covert near the scene of operations, and seen him catch the drone from the worker bees that were swarming in every direction, and afterwards shot him down, and examined the contents of a well-filled stomach by the aid of a microscope. Although crushed and torn, the appearance of the fragments fully assured me in the opinion that I had observed correctly. The broken pieces exhibited none of the distinctive parts of the worker but all the peculiarities of the drone; such as no sting in the posteriors, short proboscis, prominent eyes, hairy exterior, no pockets upon the legs to carry pollen, &c.,"

During the present season he has watched a pair of king-birds very narrowly: "Not the least disposition could I discover in them to feed upon this insect until called by the loud humming of the drones; this was the signal for active operations. Since which time they have promptly responded to each call, manifesting as much correctness in their work as two boys spearing fish from a shoal by torchlight."

Now, the drone can only be a honey bee in the sense that he eats it voraciously, and if the correspondent's induction is wide enough to prove his case, all bee fanciers are called upon to change their opinion and treatment of an unjustly suspected friend.

Bee-Keeping.

From the American Encyclopedia, with additions and emendations.

The selection of a suitable place for an apiary is of great importance. The situation should be well sheltered from strong winds, either naturally, or by building walls or fences. If not sufficiently protected, the bees are prevented from leaving the hive, and when returning with heavy loads of honey and pollen, are blown to the ground, or dashed against trees and rocks, and thus many are lost. It is not well to have large surfaces of water very near, lest the bees, overcome by cold or fatigue, should be forced to alight on them, or be carried down by the winds and perish. The hives should especially be protected from north-west winds and from chilling south winds. It is necessary, when the winters are severe, particularly to regard protection from the cold, and from dampness. The hives may face the south or east, or south east; and thus the greatest benefit will be derived from the continuance of the heat and light of the sun during that portion of the day when they are most useful. Though where increase of stock by natural swarming is not a prime object a northern exposure will not prove disadvantageous, since bees love to labor in the sun and to dwell in the shade, and are more disposed to store up honey when placed in such a situation. The hives should be set in a right line. It is better to place them on shelves, one above another, than in rows upon the ground. The distance between the hives should not be less than three feet and their height from the ground should be about two feet. Some experienced bee-keepers, however, raise the platform of the hive not more than two inches from the earth, considering this preferable, because fewer of the fatigued or chilled bees that miss the hive in returning and alight under it, are lost, the flight of issuing swarms is lower, and there is less exposure to strong winds. It will be found of not a little consequence, to have the apiary where it can be conveniently watched in swarming time, but it should by all means be removed from annoyance and disturbance by men or teams passing and fapping, or animals laboring or grazing too near the hives. Grounds on which there are no large trees, but some of small size and shrubbery, on which the swarms may alight are preferable. The grass should be mowed frequently around the hives, and the ground kept clean, not only for the delight of the bees, but to prevent too much dampness, and to destroy the lurking places of various insects and vermin.

The proper construction of the hive is one of the things most essential to success in bee-keeping. Many different kinds have been invented, each more or less complex, designed to give certain advantages, and to obviate certain evils in managing bees and producing honey. Of these it will be sufficient to mention several of the most important varieties. The chamber hive is made with two apartments—the lower for the residence of the bees, the upper to hold

the boxes in which the bees put their honey after having filled the lower part. The advantages of this are claimed to be a permanent cover for the boxes of glass or wood, or vessels of any kind put on the hive; a better protection from the weather, with less inconvenience in turning up the hive, and in fitting a shelter over it, than is found with a movable cover. These hives are sometimes made wedge-shaped, being several inches narrower from front to rear at the bottom than at the top, to prevent the combs from slipping down. They are also sometimes furnished with inclined bottom-boards, to roll out the worms that fall upon them, or are driven down by the bees. In practice, however, this latter arrangement has proved to be of little account, and these modifications have hence not been found to be of much importance. To protect the bees from vermin, several kinds of suspended hives have been contrived with inclined movable bottom boards. The dividing hives are made with several compartments, the object being to multiply, at the will of the bee-keeper, the number of colonies without the trouble and risk of swarming and hiving. When bees from any cause lose their queen, and the combs contain worker eggs or worker larvæ not more than five or six days old, another queen will usually be developed; and if this occur when drones exist in the apiary or in its vicinity, the queen thus reared will ordinarily be fertilized, and become qualified to lay both worker and drone eggs. But if no drones exist in the neighborhood at the time, with which the young queen can have intercourse, she will be able to lay drone eggs only, and the colony must inevitably perish, unless the queen be removed and one perfectly fertile substituted. By means of these divisible hives, the partitions of which are supposed to divide the brood-combs, a part of the bees and of the combs are removed and placed by themselves to go on making honey, and multiplying in every respect like a natural swarm. A very large number of stocks or swarms may thus be made, during the proper season, by a bee-keeper *having sufficient knowledge and experience*. The objection urged against this kind of hives are: the expense of construction, the frequency with which the bees are found to put all the *worker* brood-combs in one compartment, the difficulty of removing a part just at the times suited for the development of a new queen, and the increased exposure to cold and starvation in winter by separating the bees in the different compartments.

Several inventions have been made to enable the bee-keeper to change the combs and get the honey without driving out or destroying the bees. Changeable hives are made in sections, generally three drawers placed one above another, holes being made to allow the bees to pass. When the boxes are all filled, and it is desired to change the combs, the upper box is removed, and its place is supplied by a new one put in at the bottom. This being done yearly, the entire contents of the hive would be changed every three years, and be kept new. It is held, by the advocates of this description

of hive, that there is a necessity for changing the brood-combs, because the larvæ hatched from the eggs and sealed up in the cells, there spin their cocoons, which remain on the walls of the cells, when the matured insect goes out. This deposit, although extremely thin, diminishes the size of the cell, affording less room for each succeeding generation, thus causing the bees gradually to deteriorate in size. In practice this result is rarely known to cause any serious injury, though the gradual accumulation of nymphal envelopes in the cells unfits these in other respects for honey receptacles. The chief objection to this form of hive and mode of management, is its tendency to induce the bees to build drone comb inordinately in the lower compartment, which, by the *nadir*ing process, then becomes the brooding chamber, leading to the excessive production of drones, and destroying the value of the colony as a honey-producing stock. Other advantages claimed for this kind of hive are: the facility with which small swarms may be united and large ones divided; the opportunity it offers for feeding, by putting into the hive a box of surplus honey; and the uniformity of temperature preserved by the air-chamber between the drawers and the outside of the hive. On the other hand, the cost is considerable, and it is denied that deterioration is caused in the bees by the filling up of the brood cells, and time and honey are therefore needlessly wasted by keeping the bees constantly making new brood comb. This and the difficulty of putting the swarms into the hives, and the many lurking places they afford to the bee-moth, and also the difficulty of procuring in this method of taking away honey, that which is good and free from cocoon and bee-bread, in the opinion of most bee-keepers more than counterbalance their supposed advantages. Swarming hives are sometimes used. They are made with sections, so that by closing all or part of them, the space which the bees occupy is lessened; and they are crowded out, and their swarming hastened. Hives are sometimes arranged so as to allow the bees to go on accumulating honey and increasing in number, and not swarm at all. A hive of bees is put in a bee house, and empty hives connected with it, so that as soon as one becomes filled the bees pass to the adjoining ones. In some instances great quantities of honey have been obtained by this method; but it has not generally been found practicable or profitable. The result of all the experiments made in this country, with complicated and ingeniously contrived hives, and also in Europe where equally many attempts have been made to adopt artificial tenements to the simple instincts of the bee, tends to show the superiority, for practical purposes, of the simpler hive. The introduction of the movable comb hive, is the only real advance that has been made in this direction, beyond the plain old box or straw hive; and even in this all deviations from its original, plain and simple form, are in reality deteriorations, rendering them cumbersome and inconvenient, tending to defeat the chief object in view—the facility of controlling the bees and directing their labors.

For protection against the extremes of heat and cold in summer and winter, straw hives are excellent. In Poland, where finer honey is produced, and bees are more successfully managed than elsewhere in Europe, where movable combs are not yet used, hives are very generally made by excavating trunks of trees, taking logs a foot or more in diameter and about nine feet long. They are scooped out or bored for the length of six feet from one end, forming hollow cylinders; the diameter of the bore being six or eight inches. A longitudinal slit is made in the cylinder nearly its whole length and about four inches wide. Into this is fitted a slip of wood with notches on the edges large enough to admit a single bee. This slip is fastened in with wedges or hinges; and if it is in several parts, it will be found the more convenient. The top is covered, and the trunk set upright with the opening towards the south. Through this door the condition of the entire swarm is seen, and the honey taken from time to time. The length of the hive and its small diameter, fit it for both large and small swarms.

One of the best kind of common hives is made of pine boards, an inch or an inch-and-a-quarter thick. The best size is twelve inches square inside, and fourteen inches deep. If to be exposed to the sun and rain, they would be better painted. The top is made of boards, and is fifteen inches square. The boards should be joined carefully; many put paint between the junctions, to keep the moths from breeding in them. It saves the bees much labor if the inside of the hive is planed and cleaned, and covered with a thin coating of beeswax. It should not be washed immediately before a swarm is put in, with either water or spirits, or any liquid that would prevent the comb from adhering readily. Cross sticks should be put in to support the comb. Small notches should be made in the bottom of the hive for the passage of the bees. Boxes for caps or covers may be made, if the chamber hive is not preferred, about seven inches deep and twelve or thirteen inches square. If glass vessels or others are to be used to receive the honey, they may be put under these caps, or the caps may be used alone. They should fit close to the tops of the hives, several holes being made in the tops for the passage of the bees. The bottom-board should be fifteen inches square, at least large enough to give the bees space to alight and expatiate. It is better to give each hive a separate stand. If protection from vermin and insects is required, the hive may be placed on a single pedestal two feet from the ground; but if there is no danger from them, nor from dampness or snow, they may be nearer the ground. The hives need some cover from the sun and rain. A separate one for each may be easily made by putting together two boards, one-and-a-half or two feet long, and of the necessary width, letting them incline to each other so as to form a roof. Bee-houses are found not absolutely necessary, and worse than useless when not rightly constructed. It is well to guard against shading the hive too much in the spring and fall; against preventing a free circulation of air all around them in summer; and

exposing them too much in the middle of the day to the sun. The bee-house should not in cool weather, make the temperature around the hives much higher than the bees will encounter at a distance. The simple movable covers just mentioned, which are easily adjusted as the season demands, with hives made of boards of sufficient thickness, well painted to prevent warping, will generally prove an ample protection, except in very cold winters.

New swarms generally appear during the months of June and July; but sometimes as early as May, or as late as August. The swarms are usually hived when the brush or whatever they alight on can be removed, by shaking them off in front of the hive, which should be a little raised on one side to facilitate the passage of the bees. When they collect where they cannot be shaken off, and the hive cannot be placed near, they may be brushed quickly into a gauze sack or any vessel in which they can be kept and carried to the hive. It is generally irritating to the bees, and unnecessary if not useless, to endeavor to make the swarms collect and settle by a din of horns, tin pans, and bells. They will sometimes collect on a pole with a few branches, some broom corn, or dry mullein tops, or similar things fastened to the end and held in the air. They may sometimes be arrested when going off, by throwing jets of water or fine earth or sand among them. Various means are used on such occasions to disconcert them, and with about equal success. It is very seldom that a swarm starts for its chosen destination without previously alighting. If two or more swarms issue at the same time and unite, they may be separated, if desired, by shaking them from the branch between two or more hives placed near together. Should the queens enter the same hive, the bees must be shaken out between empty hives as before, and this operation repeated till the queens enter separate hives, or the bee-keeper is able to catch one or more of them and put them with the bees where wanted. Or, if there are only two swarms united, a part may be separated and returned to the parent hives, and the rest put in one hive; or they may be all put in one and boxes put on immediately. It is sometimes desirable to unite small swarms. This may be easily done if they issue about the same time, by inverting one hive and placing the other over it; the bees in the lower will ascend and join those in the upper. When for any reason it is wished to defer for a short time the issue of a swarm which the signs indicate to be just at hand, the bees on the outside of the hive should be sprinkled with water. This is effectual, but only before the swarm has started. Sometimes the swarm issues and returns several times. If this is owing to the inability of the queen to fly, she should be found if possible, and put with the others in the new hive. If the weather be such as to prevent the new swarms from going out to collect honey, several days immediately after being hived, it may be necessary to feed them.

Many bee-keepers have discarded the practice of killing the bees to get the honey; the surplus, after enough has been stored in the

hive for winter, being taken away by means of boxes, or, if these are not used, cut from the hives, the bees being driven back and partially stupefied by smoke. The comb is to be cut off clean so that the honey may run as little as possible upon the bees. The boxes should be put on a little before the hive is full. Polish apiarians cut out the old comb annually to lessen the tendency to swarming, and thus obtain the largest amount of honey. The old practice of destroying the bees, except those intended for wintering, after the hives are filled and the honey season has passed, still prevails extensively—though it should be discouraged and discontinued. The time for taking up hives depends somewhat on the season and the bee-pasturage. The quantity of honey does not generally increase after the first of September. The bees are sometimes deprived of the entire store of comb and honey, in the early part of the season, generally about twenty days after the first swarm has left, by driving them out and giving them a new hive. When the old hive is infested with moths, or the comb is not good, and it is desirable to winter the bees, this operation may be expedient. It is performed by inverting the hive and putting the other into which the bees are to be driven over it, making the junctions close, and tapping with the hand or a stick on the sides of the hive. The bees will then pass up to the new hive, which is then removed to the apiary and placed where the hive from which the bees were expelled previously stood.

Hives are sometimes attacked and robbed, either because they are queenless, or are weak, or other bees are attracted by broken combs, or by food put near them. It is useless to attempt to save a queenless colony after it is seriously attacked and the assailants are numerous; but a weak colony that has a fertile queen should be removed to a cellar, or some cool, dark place, and kept there two or three days. It is sometimes sufficient to close the entrance so as to admit but one bee at a time. It is beneficial to put a similar though empty hive in the place of the one removed, and rub the bottom board inside with wormwood leaves or the oil of wormwood. The odor of this is so disagreeable to the bees, that the robbers speedily forsake the place. Breaking the combs in the hive of the robbers, or strewing a handful of saw dust in it, will generally make them desist, by giving them employment at home.

The quantity of honey usually necessary for wintering safely a swarm of bees is thirty pounds. Those that are found in autumn to be weak in numbers, and with a scanty supply of honey, should be taken up. Only the strong stocks are profitable to winter. Brown sugar made into candy by being dissolved in water, clarified and boiled to evaporate the water, is the best food for bees. The syrup should be boiled till it begins to be brittle when cooled. This or common sugar candy may be fed to bees, in the hives, under them, or in the boxes. If fed in the liquid state, it may be introduced into the hives in dishes, with some clean cut straw strewn over it, to enable the bees to eat it without getting into it. Where feeding is likely

to be necessary, it is always best to furnish the bees with an adequate supply in autumn. If feeding is resorted to in the spring, it should be continued till flowers become abundant. Honey is of course the best food, yet sometimes too expensive. If candied, it should be heated till dissolved. Feeding should never be attempted as a matter of profit. The best honey cannot be made from cheap honey and refuse sugar or molasses; it is not made by the bees but gathered by them from the flowers. Of these white clover is the principal source of supply. Fruit trees, basswood, locust, and maple yield abundantly and of fine quality; buckwheat furnishes a large quantity, excellent for winter food of bees, but inferior for the table, as it is dark and strong-flavored.

The bee-moth is the greatest foe the apiarian has to contend with, where the common box or straw hives are used. All moth-traps and moth-proof hives are sheer humbugs. The best safeguard is to be sure to have only young and fertile queens in the colonies; otherwise constant watchfulness from May to October is indispensable. In day time the moths remain in their hiding places, and may often be found about the hives. They are on the wing in the evening, hovering around the apiary or running over the hives, endeavoring to enter and deposit their eggs. Many may be destroyed by entrapping them in shallow dishes of sweetened water, with a little vinegar added. Hollow sticks, small shells, and similar things are often placed on the bottom-boards, where the worms hatched from the eggs may take refuge and be destroyed. It is necessary to look often under the bottom of the hive, and if one side is raised (as is required for ventilation in warm weather) under the blocks or shells on which it rests. These caterpillars, at first not thicker than a thread, are of a yellowish white color with a few brownish dots. They live on the wax, eating it, and filling the combs with webs. They protect themselves from the bees by a sort of silken sack, which they spin and in which they lodge. When they have attained their full size, which requires about three weeks, they spin their cocoons. In these they remain enclosed some time and change to chrysalids of a light brown color, with a dark elevated line along the back. A few days afterwards they are transformed to winged moths, issue from the cocoons and are soon ready to deposit eggs, for another generation. Rats and mice do not attack the hives except in winter, unless the combs are unprotected by bees. They are easily removed. There is a disease called "foulbrood," which sometimes is very destructive to the young bees in the larvæ state. They die in the cells and become black and putrid. The disease appears to be in a measure infectious, and it is exceedingly difficult to eradicate when once introduced in an apiary.

Many different methods are practiced in wintering bees. It is necessary to protect them especially from two things—from being frozen, and from being starved. The latter happens when they collect together closely, in the coldest weather, and the combs become covered with frost and ice, the moisture from their bod-

ies and from the air being there deposited and frozen, excluding them from the honey. The entrance to the hive is liable to be closed with ice, and the bees thus suffocated. The bee never passes into the torpid state in winter, like some other insects; it perishes at a degree of cold low enough to freeze it. As in the case of other kinds of farm stock, it requires less food when kept warm and comfortable. If the hives are to be carried into a house or cellar, the place for them should be cool, dry, and dark. The best method is to house them, unless sufficient protection can be given them on their stands. The Russian and Polish beekeepers, who manage bees as extensively and successfully as any, winter their hives on the stands; but they make their hives of inch-and-a-half plank, and wind the upper part with twisted ropes of straw or cordage to increase the protection against extremes of heat and cold. If left on the stands, hives made of common boards need additional covering in the colder climates; the entrances should also be narrowed so as to leave only space enough for a single bee to pass. This must not be allowed to become stopped with frost and ice, or dead bees and filth. Light snow may cover the hive without danger. The practice of beekeepers is about equally divided between these two modes of wintering. The success of outdoor wintering would be greatly increased by making better hives, by better protecting them against extreme cold; and from changes of temperature. It is easier and preferable when the number of hives is very large, and there is no danger of theft, to manage them out-doors than in-doors. With a small number it may be otherwise.

The time for carrying bees out from their winter quarters is in the month of March, except in very backward seasons. A few bright cold days will not be more destructive to them than too long confinement. If new snow has fallen, and the weather is not sufficiently warm for them to venture into the air safely, the hives may be shaded from the sun, or the bees confined in the hive. If they are to stand very near each other, it is not well to carry a large number of hives at once, the bees at first not readily distinguishing their own. The hives should be raised from the bottom-board only on one side, if at all. Many prefer if the bees are not especially numerous, to let the hive rest entirely on the board, allowing less room for passage, and securing greater defence against intruders. More ventilation than this affords may be required in warm weather, when, if liable to suffer from heat, the hive may be raised entirely, proper means being furnished for the bees to ascend from the bottom-board.

The careful beekeeper has long desired to possess some method of measuring the daily increase or decrease in the weight of his hive. A German publication states that a beekeeper took the trouble to weigh one of his hives twice a day—before the bees left in the morning, and after their return at night—and thus he determined the nightly loss by consumption and evaporation. These observations were continued from May 5 to August 2, a period of ninety-one days, and the results are very interesting.

On May 5 the hive weighed 64 pounds; it lost two swarms weighing 12 pounds, yet on Aug. 2 it weighed 120½ pounds. There was no increase in weight from June 28 to July 21, except ¼ pound on one day and ¾ on another, and from July 17 to Aug. 2 the whole increase was only three pounds. The work of each day is minutely recorded and the results go to prove that the beekeeper should have some means of ascertaining the weight of his hives daily throughout the season. A method of doing this has been invented by Mr. Shirley Hibbard, of Tottenham, England. It consists of a turned pillar, made after the fashion of a telescope, working like a piston in a brass or iron cylinder. Beneath the pillar is a spiral spring, on which the pillar rests. Two slits run down the side or front of the cylinder, and between them an index is marked. A finger is attached to the base of the pillar, and the hive adjusted on the top of the latter, so that as it presses down on the spring the finger marks the gross weight of the whole. A thumbscrew passes through the cylinder, and by pressing against the pillar holds it in a fixed position whenever it may be desirable.

Beekeeping has in some instances been made very profitable. Much depends on the season and on the pasturage. The value of the best honey is, in a great degree, determined by the style and state in which it is brought to market. It will generally be found most advantageous to use glass vessels or boxes, and to send the honey to market in the same.

[For the American Bee Journal.]

Introducing Queens.

THE SIMPLEST, SUREST AND MOST EXPEDITIOUS MODE.

Take a stick of candy, of any peculiar flavor, dissolve it in hot water, and sweeten with honey or white sugar, adding cold water enough to make a teacupful of the sweetened mixture. Have your queen, to be introduced, ready in a wire cage, or nucleus hive; drive out the bees into an empty hive or box; remove the queen from them, and sprinkle the mass of bees thoroughly with your sweet-scented water; stirring them up until all are scented and filled with the sweet mixture; then turn your queen among them, sprinkling her as she goes in, and make them all crawl back into the hive over a sheet on the alighting board, and your queen is safely introduced. This is done so quick the bees do not realize the change.

GEO. HARDESTY.

MALVERN, (OHIO,) July 20, 1867.

[For the American Bee Journal.]

EDITOR BEE JOURNAL: I see in the columns of your excellent Journal one or two cases corroborating two cases in my own experience.

The first is, that I placed in a maturing box a queen cell, and examined it in two or three days. At first sight I thought it was destroyed, being opened on the side of the cell, the apex being entirely closed. But, to my surprise,

the next moment I saw a beautiful young Italian queen, which became fertilized and was perfect.

The other was this: I raised a card from a nucleus, to learn how they were progressing with cells. The first thing I noticed was an opening in a cell, just similar to the one described. The thought at once occurred that there was a queen at large committing havoc with my cells. I then saw an opening in a queen cell, just as if a queen had committed violence on it, and near it was a beautiful queen, which afterward became fertilized. Hence we are confirmed in the conclusion that there are exceptions to the rule that the position of the queen at the time she comes out of the cell is *always* head downward.

ADDISON JOHNSON.

PLEASANT PLAIN, OHIO.

For the American Bee Journal.

Purity of Italian Bees.

I was very much pleased with Prof. Varro's article, in No. 1, volume iii, of the BEE JOURNAL, on this subject. It is certainly the fairest and most satisfactory which has been given by any American bee-keeper in your paper.

There must be a great deal of harm done the bee interest of the country by the immense number of impure queens sent out yearly, by men who ought to know better than to go into the business before they had made themselves perfectly familiar with the markings of the Italian bee, as settled by "the best" European "apiarians."

It is surprising to see how boldly the gentleman who considers one band all sufficient, sets forth in his circular, as tests of purity, the very marks and temper, which any one who has read volume i, of the BEE JOURNAL, or Mr. Langstroth's writings on the subject, knows are certain indications of mixed blood. I procured last year an Italian queen (tested) from a gentleman of Baltimore, Maryland, who has the Italians in their greatest purity. And, although I have opened the hive continually, both last season and this, to obtain brood for queen-raising, I have not received a single sting, nor have I seen a bee, young or old, gorged or empty, that did not show distinctly *three* yellow bands. Prof. V.'s remarks about the price of pure queens are most sensible; no one could sell *pure tested queens* at less than \$15 or \$20, and be paid for the time and trouble he would have to spend with them. There is one thing more I was in hopes Prof. V. would notice—that is, the practice of sending out queens untested, with guarantee to replace them if their progeny is impure. This manifestly leads to the sale of many bastardized queens, for in most instances the purchaser never saw an Italian bee, and has to rely entirely on the descriptions of interested parties to judge of their purity.

Would it not be the best, indeed the only way to insure pure blood, for dealers to send out none but tested queens, and to charge fair living prices?

D. M. WORTHINGTON.

ELKRIDGE, MARYLAND, July 13, 1867.

[From the Prairie Farmer]

American Bee Plant.*(Cleome Integrifolia.)*

This plant has been cultivated to some extent in this neighborhood for several years past, and proves to be one of the best, and probably the very best honey-producing plant known. It was introduced by the writer about the year 1860, as a new annual flowering plant, from the Rocky Mountain region, but its great value was not at that time known, and was not discovered till a year or two after, when the writer was surprised to see the flowers covered with bees, while others, in the immediate neighborhood were quite neglected. The next year a much larger quantity of the plant was grown, and it was found that the honey stored in boxes at the time that the plant was in bloom, was of a much finer quality than any other. Every succeeding year of its cultivation confirms this, and I find that while this plant was in bloom, nearly all other flowers were discarded; even the buckwheat, which every one knows is a great favorite with the industrious little fellows, is quite deserted. The honey stored from this plant is positively the finest, both to the eye and palate, of any that I ever saw.

The plant is of easy culture and looks well in the flower garden. It is a strong grower, and much branched like the common mustard plant, though its flowers are a bright purple, and are produced from midsummer until frost destroys it in autumn.

It will grow on any soil, though a rich one suits it best, and may be sown in drills, or broadcast if the ground is clean. Autumn is the best time for sowing it, as it comes into bloom sooner. It has already acquired the local name of "Bee Plant" in this vicinity (Chicago,) and as it is indigenous, I propose that we call it the Great American Bee Plant.

H. A. TERRY.

Honey-Guide.

CUCULUS INDICATOR.

The birds to which this name is given inhabit various parts of Africa, and are closely allied to the Cuckoo tribe, but differ from them in hatching their own eggs. They are celebrated for their curious habit of guiding the natives to the nests of wild bees, enticing them to the spot by flitting before them and reiterating a peculiar cry. They have a solid, conical and arched beak, small head, body long and straight, toes strong and short, and wings reaching to the middle of the tail. The feathers are short, hard, and compressed close to the body, and the skin is so thick and tough as to protect them effectually from the stings of bees, unless the enraged insects attack their eyes. The nest of this Honey-guide is composed of slender filaments of bark woven together in a form of a bottle, the neck and opening hanging downwards; and it is said to be constructed in the hollow of trees, which the

bird climbs like a woodpecker. The general color is an olive green, brownish on the upper parts, and inclining to yellow beneath. One species is described as being about seven inches in length, and another as ten inches. They are called respectively the Little and Great Honey-guide.

[For the American Bee Journal.]

Saving Queens.

Some time ago one of my colonies of Italian bees attempted to swarm out, but I arrested it and prevented the desertion by capturing the queen. On letting her run back into the hive, the returning bees attempted to kill her. I caged her for protection, placing the cage between the two central brood combs. Next day the same colony attempted twice more to swarm out, but had to return as the queen could not follow the bees. As the queen was a very valuable one, I removed her to a queenless colony, and substituted for her a queen cell nearly ready to hatch. Examining the colony the following day, I found that the queen cells had been destroyed, and the bees were building others from their own brood.

In every instance where a colony attempts to swarm out, the bee-keeper would do well to take away the queen, and use her to supply some queenless stock, if he has any. Such removal is a useful precaution, as, with me, in a number of instances the bees killed their queens, when for any reason she was unable to accompany them in their proposed desertion. A. GRIMM.

JEFFERSON, WISCONSIN.

[For the American Bee Journal.]

A Singular Case.

On the 4th of April last, a stock of Italian bees just taken out of its winter quarters, had some sealed drone brood on a comb almost five inches square. I suspected that I had found a queenless stock with a fertile worker. Re-examining a few days afterwards, I found a young worker bee just hatched, and about half a dozen cells with sealed worker brood. As the colony was in a box hive without movable combs, I could not see the queen. About a week later I found two sealed queen cells, and the quantity of drone brood increased. Of course I did not expect that a queen would be hatched from these cells. Looking again a little over a week later, I found one of them opened regularly, and on further examination on the 27th of May, I found fresh sealed worker brood. I would add that the drone brood was in drone comb, and not, as is usually the case in such hives, in worker comb; and the cells were built on the edge of the comb, as in swarming time. Did the queen deposit the eggs in those cells, or did the workers transport a larva into them? If so, how has it happened that they made no blunder, considering that there were or must have been at least fifty drone eggs to one worker egg in the hive? Why did this middle-sized colony rear so much drone brood so early in the season, when no other hive had any drone brood yet?

JEFFERSON, WISCONSIN.

A. GRIMM.

[For the American Bee Journal.]

Purity of Italian Queens.

DEAR BEE JOURNAL:—I haste to make you acquainted with a great discovery which I have just made; at least a great one to me, perhaps your readers may not all concur in the statement.

Before detailing it I will briefly enumerate the advantages of some plan by which we may tell immediately whether a queen or her progeny is tainted with black brood or not.

The first test given us is, that a queen's workers shall all have the three yellow bands distinctly.

But it has happened—so often that a hybrid queen will produce workers almost perfectly marked, that we think it would be very difficult indeed for a novice to distinguish by that alone what queen he might rear from.

Again, we are told that none can be considered as pure unless their royal daughters, when impregnated by their drones, produce three-banded workers, &c. &c. Now this test I have found a very good one; but, Mr. Editor, "aint it an awful sight of trouble?"

Still again—and we think a little more in the right direction—"Impeccability of temper," as one correspondent said (we forget his name,) with the linen pants on, who sat down on the frames.

Now, how are we to test their temper? I once, last fall, so irritated the progeny of a twenty dollar Langstroth queen, that it was almost impossible to go within two rods of their hive, and this was occasioned only by trying to remove some brood on a cold morning after forage had nearly failed. Yet they were as peaceable as ever next day. On the other hand I have a colony of one and two ringed hybrids that are nearly as peaceable as the pure ones, having never been irritated.

NOW FOR THE TEST. One of the first and most distinct peculiarities from our common bees that I noticed, was that the workers accompanying my twenty dollar queen, would allow themselves to be breathed on without noticing or resenting it in the least; whereas nothing so exasperates and provokes to fury black bees, or those having any taint of the black race, as breathing on them.

A few days ago, in showing a friend the docility of the Italians, I stooped down and breathed full upon them, as they were clustered out in front of the hive; nay, I even pushed them away with my lips, without their betraying any symptoms of anger. To show him the difference, I then breathed slightly on a hive of black bees near. Of course I had a lot of them promptly in my face. I next tried it on a hybrid stock (first putting my millinet veil over my face.) The effect reminded me of a charge of buck-shot. The same result with my quiet hybrids already mentioned; and the same with a colony that I had considered pure, until I tried to raise queens from them; a colony where the young Italians were just hatching, flew in my face, all except the Italians, which stood their ground with perfect unconcern.

Now, all ye that would know if your queens are pure, go and breathe on your bees in front of the hive, and my word for it, *if they are pure*, you cannot arouse their anger by so doing.

I fully expect many dealers in Italian queens will protest against this test, and well they may; and perhaps they too will conclude that a queen that will stand that test, is worth twenty dollars, as per correspondent before mentioned.

A. I. Root.

MEDINA, OHIO.

P. S.—I don't use tobacco, nor whiskey. Either will interfere with the validity of my discovery.

P. S., No. 2.—If any of your readers get their eyes swelled up, so that they cannot see at all, bid them remember that it is in a great cause.

On receiving this communication we sent an account of Mr. Root's discovery to Prof. Varro, of Washington, Pa., requesting him to test it, and communicate the result. He has obligingly favored us with the following confirmatory reply. [Ed.]

For the American Bee Journal.

MR. EDITOR:—In acknowledging your favor of the 6th inst., together with the reception of the first volume of the "JOURNAL," I beg your leave to subjoin a few desultory remarks upon the various heads which of late, have made their appearance in your publications and elsewhere, directly referring to apiculture.

The use of rotten wood as recommended by Rev. L. L. Langstroth, Third Edition, Page 27, foot note, and by him considered *best*, Page 154, same edition, I consider as nothing very *extra* in practical bee culture, although its praises have been repeatedly resung. (B. J., Volume Second, Page 227, and Volume Third, Page 20.)

In dissenting from the views above entertained, it seems but fair that I should state my reasons for doing so. By the substitution of "Killickinick" for rotten wood, or rotten rags, you can on removing the honey board, expedite one whiff transversely over the frames, and at the same moment shift and lift any frame from the body of the hive, before the bees seem to be aware of your presence. By now jerking your *one-banded Italians* upon the remaining frames and sending another whiff after them, none will usually remain above for a second or so.—Try it—and thus you may at the same time "worship your idol," spare the wings of many bees, and save your trouble of hunting, storing, preserving, rehousing and preparing your welcome rotten wood. I am well aware that our Rev. friend, L. L. Langstroth, dissuades the genuine lover of bees from using the sickening fumes of tobacco, and lest I be accused of encouraging a bad habit, the genuine lover of bees, or the keeper of a whole swarm or two, or the apiarian of a hundred *pure Italian stocks*, may use *sweetened water*. If you concede that the "smoke pipe" is more handy than the "smudge," considering that with the use of the latter it is next to impossible to replace a frame, without crushing a bee or two, I shall hold my pipe forever.

The "Experience of a Novice in Bee-Keeping," affords me a great many ludicrous reminiscences, and accords so fully with my own, in its earlier stages, that I could not improve upon his rehearsal, if I would, although (No. 5 of his Experience) in speaking of buckwheat, he might have reminded the "several bee-keepers about here" as well as many of your other readers, who, not like Dr. Watts, seem to think "the little busy bee" gathers honey "all the day," but all the year, that, as Mr. Moneypenny would say, "a sixpence saved is a shilling earned." Work on, friend, you are at the "root" of certain achievements worthy of your name.

It has been suggested to me by an enlightened, practical and scientific apiculturist, that since my first communication to the AMERICAN BEE JOURNAL, another sure and infallible test of Italian bees has been discovered—apart from their markings. It is this:

The workers will allow themselves to be breathed upon without noticing or resenting it in the least— whereas nothing so exasperates and provokes to fury, black bees, or bees possessing any taint of the black race, as the breath from the human lungs. Says he, "a few days ago, on showing a friend the docility of the Italian bees, I stooped down and breathed full upon them as they were clustered out in front of the hive. Nay, I even brushed them away with my lips without their betraying any symptoms of anger. To show him the difference, I then breathed slightly on a hive of black bees near. Of course I had a lot of them promptly in my face. I next tried it on a hybrid stock, first donning a millinet veil. The effect reminded me of a charge of buck-shot. The same result with my quiet hybrids. The same with a colony that I had considered pure until I raised queens from them. A colony where the young Italians were just hatching was next tried; all flew in my face except the Italians, which stood their ground with perfect unconcern."

I felt a great curiosity to ascertain how my bees would behave under similar treatment, and immediately proceeded to offer the just described insult to twenty-four stocks of Italians, and one stock of blacks which I bought about three weeks ago, for the purpose of locating a super-numerary fertile Italian queen. The result of four different visits, with slight variation in operation, are as follows.

First visit. Friday, August 9, 6 o'clock, P. M. After breathing full, and at once loud and long upon each of the twenty-four Italian stocks, the effect was nothing more nor less than the same volume and amount of breath would have had upon standing water. By protracted repetitions of breath, the individual cluster of each hive gradually became thinner and thinner, till finally I had cleared them all or nearly all from the spot where the cluster was, so much so, that in every instance I could see the color of the hive.

The blacks resented but slightly, at first, but gradually the number of angry bees increased, till I thought it wise to retreat.

Visit Second. Saturday noon following, when not so many bees were as yet clustered out, the weather being sultry with indications of rain,

and my breath purposely well flavored with a *claw of garlic*, the effect upon the Italians was in every respect the same as on the first visit. But the blacks at once manifested by their threatening attitudes considerable anger, and a perfect storm of bees suddenly appearing at the entrance, I left.

Visit Third. Which took place about fifteen minutes later; the Italians still stood their ground bravely, though many wondered what was going on out of doors, and felt a little uneasy at my repeated calls. Still not more than two or three of each stock flew at me, and these seemingly without any bad intentions, as several of them becoming entangled in my beard, escaped in perfect amiability. The black ones, during the half hour's interval since my last visit, having considerably increased in number, did not wait at this time till my sweetly scented lips came within kissing distance, but unceremoniously met them half way, singing and buzzing around the drum of my ears, till with the ETTRIC SHEPHERD, I thought "they were in at the ae hole and out at the ither—back again after makin' a circuit, as if they had repented o' letting you unharmed, dashin' against the face o' you who are wishin' ill to nae living thing."

In the evening after this catastrophe, I found five young queens torn from their cells, lying dead before the black stock.

My last effort at arousing the ire of my Italians was made on Sunday morning, about 9 o'clock, without the aid of garlic, of course; but by using a turkey tail feather, I wished to ascertain how often I could brush them towards the entrance without exasperating them. Of some stocks I could thus push back the bees as high as nine and ten times, without their endeavoring to stick to the feather. None took wing, but quite a number, at this time, were exhibiting great displeasure. The blacks were still very angry and I preferred not to worry them again.

I have stated in a former article that I think my Italian bees are pure, and again I must reiterate my conviction, or say (though I be myself) my breath during the several above-mentioned courtships, must have been exceedingly sweet.

The fact that the common bees behaved so unladylike, should in this instance not be altogether attributed to breathing upon them, as it is a well-known fact that bees at the time of rearing their queens are more susceptible to anger than at any other time. It is quite probable that these oft repeated disturbances took place at the very time when the young queens found before the hive were on the point of hatching, which seems to be the culminating point of a black bee's irascibility.

If this additional test were universally adopted as the standard of purity in Italian bees, and every queen whose progeny did not come up to it, were unconditionally rejected as an unworthy mother, who would dare say, with any show of plausibility, that these beautiful, useful and exceedingly interesting insects, might not, within the present century, be indefinitely improved.

Will not your correspondents give this matter a thorough investigation, and lend us a helping hand in the elucidation of this very important point?

PROF. VARRO.

WASHINGTON, PA., August 12th, 1867.

[For the American Bee Journal.]

Experience of a Novice in Bee-keeping.

No. 6.

As I before remarked, my bee-keeping for the summer of 1866 was not very profitable. Had I not endeavored to increase my number of stocks so much, I should have done much better. My two strongest stocks that were Italianized early, made about forty pounds of surplus honey each, besides having plenty for winter, which was much better than any common bees did about here.

I prepared twelve colonies for winter, in what I supposed to be the best manner. I lost four of them, and among them my twenty dollar queen. I will give my reasons for the loss, that others may profit thereby, if they think proper.

The first three were composed mainly of bees from condemned stocks, obtained from neighbors about the last of August. They were so nearly without honey, from then till November, that very little brood was raised. They were then fed so as to weigh twenty-five pounds each, aside from the hive. They all had plenty of honey in the spring, but very few bees; and these too all died off before it was warm enough to raise more, for the reason, I suppose, that they were too old, having mainly been hatched in August. Bees, to winter well, should, in my opinion, have *honey sufficient to raise brood in the fall months* to winter over.

With my Langstroth queens the case was different. I intended that they should winter well any way; so I gave each of them two heavy frames of sealed honey, which I put at the sides of the hive, supposing that they could get it as they needed it, leaving several frames in the middle from which I had cut brood for raising queens so late in the fall that it was not built up again. I found the bees frozen as hard as a bullet, apparently as though they had been unable to get at the frames on the outside at all, although I had cut proper winter passages in all the combs. They had proper ventilation also, as the honey-board was removed, and replaced by a double layer of corn-cobs. I think if the full frames had been placed in the middle, they would have been all right.

As an experiment I put two fair colonies in one hive. Contrary to what is generally told us, they *did* consume the whole of their twenty-five pounds, before some of the weak colonies had consumed fifteen; and did not do much better in the spring either, perhaps because they were mostly old bees, as mentioned before.

I would like to ask here what we are to understand by the statements we have of buried colonies passing the winter on three or four pounds, or even as many ounces, as mentioned in the

July number? My experience would show that bees eat nearly as much in the warm weather in the fall, as they do in the winter; and in no case less than 2½ pounds per month per stock. Do they mean that the bees, at a certain temperature, assume a semi-torpid state and scarcely eat at all? In no other way can we explain it, if such is really the fact.

The present season, here, has been much better than the last, so much so that we feel pretty well satisfied with the results.

I enclose an extract from a country paper, which though not so large in comparison with the statements in the BEE JOURNAL, is considerably ahead of any thing we have ever had here from the common bees.

[From the Medina Gazette]

Italian Bees and Scientific Bee-Culture.

In answer to many inquiries we would state that we have a single hive of Italian Bees, that have already (this season) filled three boxes, averaging twenty pounds each, with honey, and a fourth box is at present tully three-quarters full, making about 75 lbs of box honey, and are still storing it rapidly. The same stock was swarmed once artificially the last of June, and the swarm has, besides filling their hive, nearly filled the second box, which would amount at the present time to something over a hundred weight of box honey, as the proceeds of a single hive.

It having been said that all of the large statements in regard to Italians were from interested persons, so we would remark before making the following statement that we have neither queens, bees, nor hives to dispose of, but do it simply to show what may be done by Italians and artificial swarming.

On the 22d of June, a strong Italian stock was removed while the bees were flying, and an empty hive containing a young fertile queen put in its place. The returning bees soon made a good swarm and in twenty-four hours the hive was suprisingly heavy, and in 48 hours it had increased *thirty pounds by actual weight*. The hive was furnished with frames of empty comb from which the bees had died last winter, or this would not have been possible.

On the third day a box was given them which they commenced in immediately and they are now, July 29th, at work on their third one, having filled two. We should be pleased to hear some figures in regard to common bees this season, from those that have them.

We propose taking the entire produce of our best stock (the first mentioned) to our coming Agricultural Fair. Respectfully,

A. I. Root.

ERRATA—In our article No. 5 in the July number, are three errors, viz:—

Line 24 from the top, "in" is superfluous—should be "Having something in the shape of a queen."

Line 8, from the bottom, the word *six* should be *three*.

And on next page, in line 25 from the bottom, occurs the ludicrous blunder of substituting "cheese" box for "close" box! Did the compositor serve on one of the Monitors?

A. I. ROOT.

MEDINA, OHIO.

For the American Bee Journal.

Mr. W. A. Flanders, in his April excursion thro' the United States, B. J., Page 190, Volume Second, among other memorable feats of animalcular dynamics humbly condescended to ask the "KNOWING ONES" a series of questions which they have hitherto been unable to answer satisfactorily to myself and other learned *apiculturians*. After much hesitation, lest I should betray my ignorance in experimental science, I must at last confess that I have "to give it up," kindly beseeching the Professor to publish the solutions to his apiarian problems, as also to the following puzzle, which I know he can *dissolve* to the entire satisfaction of the bee-keeping public.

A nucleus of bees having been abandoned to their supposed destruction on the 11th day of July, on account of repeated robbing and consequent total want of food and forage, on examination was found minus queen cells, brood and eggs. There was nothing visible in the combs but a very few cells containing pollen. On the 20th day of the same month a half finished queen cell was discovered, apparently entirely dried up within, and of eggs or honey not a trace. On the 6th day of August a small, though perfectly formed Italian queen was found *laying*, as also several cells containing honey.

Query 1st. Supposing an egg to have escaped notice, might it not have retained vitality enough from the eleventh to the seventeenth of July, when I suppose the queen cell may have been commenced, and the egg manipulated upon?

Query 2d. Supposing the above hypothesis to be erroneous, where did the bees obtain the egg that ultimately hatched into a perfect queen?

Query 3d. How did the bees perfect the cell and queen without any visible subsistence in the field or hive, except the few cells of pollen above mentioned?

Query 4th. My bees being all blacks, having repeatedly failed at Italianizing them, and no Italians nearer than Prof. Varro's of Washington Co., Pa., a distance of at least nine miles from here, could the bees have obtained this egg at such a distance from where it was transformed into a queen?

Now, will not Prof. W. A. Flanders, or some other "KNOWING ONE" *dissolve* this problem and greatly oblige,

Prof. A. P. A. ALSATIUS, A. M.,
Corresponding Secretary of Coon Island Golden Apiary, 2½ miles from shore.

WEST END, Aug. 6th, 1867.

SEND us the names of bee-keepers, with their Post Office address.

[For the American Bee Journal.]

Straight Combs.

"Always straight combs has never been and never will be true in practice, except guide frames are used."—Bee Journal Vol. 3, page 28. Reply to Querist.

Place a swarm in a movable comb hive; examine when they start combs. Have a table knife ready, if a low hive is used; or a painter's knife if it is a tall hive; or lift the frames. Bend the combs in place, even to the cutting out and fastening again by melting the edges over a lamp or candle. If one side is extended at the expense of the next nearest comb, use the knife. Press the combs from the side and bottom upwards; that is, cap the combs, as that gives the bees a pattern. If extended too much to cap, cut it off over a dish, or if a tight-bottomed hive is used, elevate the front as in feeding, so that the honey will stay in till the bees gather it up again; then replace the hive. The knife will cause the bees to build their combs as straight as a board, if practically used. Three visits have been enough for most of my hives this year. I have straightened fifty hives a day, besides cutting out and grafting queen cells in other hives, and building up several nuclei a day. It will be seen, or can be, that the combs are made straight; and this can always be at the option of the beekeeper.

I have seen the combs in fifty hives of a neighbor, as straight and of as uniform a thickness as a pile of boards cut from a log. Will this neighbor please give the Journal his experience with straight combs, as he has an entire apiary of that description?

JAMES M. MARVIN.

ST. CHARLES, ILLS.

Our correspondent's "neighbor" will much oblige us, and greatly benefit a large number of beekeepers just introducing movable comb hives in their apiaries, by furnishing us with a detailed account of the means used to secure straight combs, and which have proved so signally successful.

Surplus Honey.

I have taken honey from a swarm of Italian bees which threw off a swarm June 1st—as follows: June 16th thirteen pounds; June 20th five pounds; July 5th two upper cones thirty-eight pounds; July 5th eight frames fifty-five pounds—making in all, from June 1st to July 5th, one hundred and eleven pounds. I have left fourteen frames in the lower Lox untouched, which are capable of holding seven pounds of honey each, but the greater part are filled with brood, and probably do not contain more than from thirty-five to forty pounds of honey. They have gone to work in good earnest to repair their loss, with almost half the honey season left, and many beekeepers think the buckwheat season the best in the year.

CORRESPONDENT TIFFIN TRIBUNE.

Honey.

The saccharine juice of plants, collected by bees from flowers, and deposited by them in the waxen cells of the comb in the hive, is called honey. These juices undergo some modification in the honey-bag of the bee; but, though their chemical character is somewhat changed, they still retain the flavor and to some extent the peculiar properties of the plants from which they were collected. Under a powerful microscope the pollen that was mixed with the juices may be detected in the honey, and even referred to the particular kind of plant to which it belonged. The prevalence of certain varieties may determine what sort of localities—gardens, woods or mountains—have been most frequented by the bees. Flowers of sweet perfume impart an agreeable odor and flavor to the honey; so that the product of some districts is famed and prized, while the bees of others, drawing upon very different sources, give to the honey they gather the disagreeable and even dangerous properties of the plants themselves. Thus the honey of Mount Ida in Crete, has always been held in highest estimation, as also that of Narbonne and Chamouni; but the honey of Trebizond causes headache and vomiting, and possesses poisonous properties supposed to be derived from the rhododendron *Azalea Pontica*. Xenophon, in his "Anabasis," notices his soldiers being poisoned by eating such honey. Cases of the same character are recorded in the "New Jersey Medical Reporter," November, 1852.

The substances recognized in honey are grape, sugar, manna, gum mucilage, extractive, a little wax, pollen, acid, and odoriferous substances. When allowed to drain from the comb it is wholly fluid, and this, as well as the superior quality first made in the season, and deposited in the upper part of the hives is known as virgin honey. But as ordinarily pressed out it holds a solid crystalline sugar, which may be separated by draining and pressing the fluid portion through a linen bag. The sugar is believed to be identical with grape sugar; but except its consistency and tendency to crystallize, it is not apparently different from the fluid honey. Their taste and chemical properties are the same. The proportion of crystallizable sugar increases with the age of the honey, so as to give it in time a granular character. The consistency of honey is thus very variable. The best and newest of the spring season is a clear fluid contained in a white comb. Older honey is yellowish and reddish. It is freely dissolved in cold water, and in this condition honey undergoes the vinous fermentation. Various substances are fraudulently introduced into honey, to add to its weight and improve its color. The presence of such matter may be detected by dissolving some of the honey in warm water, and letting the mixture stand for the deposit to fall. The different sugars are also used as adulterants, the presence of all which may be detected either by microscopic observations directed to the forms and comparative sizes of the crystals, or to the presence of the sugar acari, or by the chemical tests also

cited with the others by Dr. Hassall in his work "Adulterations Detected." Starch sugar, possessing the same chemical properties as the sugar of honey cannot be detected; but being often accompanied by sulphate of lime resulting from the materials used in its preparation, the presence of this is an indication of adulteration with starch sugar.

From the remotest times honey has been employed as an article of food; and to the ancients, in the absence of sugar, it was of greater importance than to the moderns. A land flowing with milk and honey, was to them a region abounding with the chief necessities of life. As an article of diet and of medicine, honey possesses the properties of sugar, but is perhaps more laxative. Many constitutions, especially those subject to dyspepsia, cannot resist its disordering tendency; but those accustomed to its use find it wholesome and agreeable. In medicine its use is principally as a vehicle for other more active substances; but its composition and action upon all constitutions being somewhat uncertain, a solution of pure sugar is generally preferred for this purpose. When in combination with vinegar, the preparations are called oxymels. Honey is easily clarified by heating it in a water bath till it becomes so fluid as to be easily strained through flannel. The wax and lighter impurities may be removed by skimming, while the heavier substances sink to the bottom.

[For the American Bee Journal.]

"He leaps from the bath—rushes into the streets of Syracuse, exclaiming Eureka! Eureka!"

MR. EDITOR:—The ecstasies of our beloved brother correspondent, Wm. A. Bennett, another Syracusan Philosopher on the mechanical arts—Page 17, Volume Third, AMERICAN BEE JOURNAL, forcibly strikes our susceptible imagination as bestowed upon an object equally desirable and useful with the crown of Hiero, to wit: A Home for the Honey Bee clearly pre-eminent, as invented by Mr. T. R. Allen.

Believing, as we do, Mr. B's description of the hive in question to be correct, we at the same time say that he has never seen the invention of Mr. T. S. Underhill; and speaking from experience, that hives of this description are, in our humble opinion, vastly inferior to simple boxes, top and bottomless, from which the frames are lifted out from the top, the persistent denials of interested parties to the contrary notwithstanding.

Mr. Allen has certainly chosen a very inappropriate name (Home) for his hives; for in a real home there should be committed no wilful murder, and were it for this advantage alone, the Langstroth hive would "claim as we think with justice, a clear pre-eminence" over any and every hive with which we are acquainted, our own not excepted.

As the bees cannot by any known means be driven out of the way on the further side of the comb when introduced into the hive laterally, but instinctively mean to hasten from danger to that very side as soon as brought in contact with the hive, the danger of murdering scores

of bees at one operation, when the frames are filled with honey at top, is greatly increased, and bees of the common kind greatly infuriated, whereas for Italians whose tenacity to the comb has become, as it were, proverbial, certain death to them is inevitable.

Do you say that the "frame work and frames (best made of cast iron)" with its bevels or hinges or sacks or racks or what nots, constitute the superiority of this hive? We would respectfully inform you that this superiority of cast iron over wood, is as yet entirely problematic, and that frames properly constructed and not more than ten or eleven inches in depth will always be found to hang true upon the rabbets, when the hive is placed level, as it invariably should be. A greater depth of comb than this is neither desirable, nor in any way profitable to the bees or their owner, when the hive is at least eighteen inches from front to rear, containing at least nine frames for Italians, or eight for the common bee.

The expert bee-keeper, who understands how to secure straight combs always, needs more-over *nothing* to space the distances between the frames, and this very *nothing* likewise saves thousands of busy workers during the spring and summer months, always supposing that they are handled as they should be; and, if they are not meant to be thus handled, the common cottage hive is more desirable than any patent that has yet been brought to light, unless it be the simplest, and therefore "most perfect" patent hive—the Langstroth hive. By expressing our sincere conviction that this hive, as described by Mr. Bennett, will never become popular, we do not wish to detract from any of its supposed merits over others, and sincerely trust that *perfection has already been reached*.

And now, my very dear and indulgent readers, if what I have said should in any way give offense to Mr. A. or B. or C., or any other alphabetical gentleman, the columns of our beloved BEE JOURNAL, are, I suppose, alike open to its numerous intelligent and progressive subscribers, and if Mr. B claims the right publicly to exclaim *Eureka!* with his Syracusan Brother Archimedes, I trust he will not begrudge me the pleasure of privately thinking with Cicero, *Nihil tam absurde dici potest, quod non dicatur ab aliquo philosophorum.*

F. VARRO.

N. B.—No hives on sale.

Delayed Fecundation.

A QUEEN BECOMES FERTILE AFTER SHE IS FORTY-ONE DAYS OLD.

On the first of April I brought out the bees I had kept under ground since the first of November. Next morning I examined a number of hives, and found several dead young queens before one of them. On examination I found that the bees had reared a young queen. I examined this hive repeatedly for eggs, but could see none till the 19th of May, when I found a great number and likewise a few very small

larvæ at the bottom of some of the cells. On the 29th of May I made another examination, and found a good deal of sealed worker-brood, with some little drone-brood interspersed. I never yet knew a queen become fertile after so long delay as this. They would usually commence laying drone eggs after the twenty-first day from their hatching time, if that was in warm summer weather.

A. GRIMM.

JEFFERSON, WISCONSIN.

[For the American Bee Journal.]

A New Way to Italianize a Colony of Native Bees.

At one time last summer, I had so many sealed queen cells ready to hatch, that I found it difficult to find places for them, as all my nuclei had either cells or queens, and some of the latter just commencing to lay. Being aware that the worker bees usually destroy a queen cell, if introduced before the lapse of twenty-four hours after the removal of their queen, I concluded to try a different way. I caged the fertile queens in a number of nuclei, letting them remain with their little colonies. I then inserted a queen cell into one of the combs in each of these nuclei; and I must say contrary to my expectation, every queen cell hatched, and the young queen as well as the old one, was nursed by the bees. In some of the nuclei, both queens were left in, till the younger one had also become fertile.

This success gave me the idea of trying the same process with full-sized half-breed colonies. I simply caged the queen and immediately inserted a queen cell that would hatch within twenty-four hours. When hatched, I waited till the young queen commenced laying, and then killed the bastard old queen—running the risk of having the young queen turn out a half-breed also.

This is a very safe way of changing queens, and less damaging to the old stock, than when the queen is taken away, and after the lapse of nine days the combs cleared of queen cells, and the queen then introduced. But if the bee-keeper does not wish to lose the eggs which his old queen would lay during the nine days (before the lapse of which no young queen ever commenced laying with me,) he may cage his young queen for about a week, and liberate the old one; and after the lapse of another week, cage the old queen again and liberate the young one—waiting till the latter becomes fertile, before the old one is removed.

Some bee-keepers may think it too much trouble to do so much caging and liberating; but I shall leave it to those who try it, to say whether they would prefer to do as I advise and do, or to insert queen cells in a nucleus and wait till the queen becomes fertile, rather than cage her and introduce her into another stock from which the queen has been removed.

A. GRIMM.

JEFFERSON, WISCONSIN.

THE AMERICAN BEE JOURNAL.

WASHINGTON, SEPTEMBER, 1867.

THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at \$2 per annum. All communications should be addressed to the Editor, at that place.

To Subscribers in Canada.

MR. JOHN H. THOMAS, of Brooklyn, Canada West, will act as the authorized agent of the AMERICAN BEE JOURNAL in Canada and the British provinces. Remittances to him on our account, will be duly acknowledged.

MR. Adam Grimm, of Jefferson, Wisconsin, sailed from New York on the 17th instant for Europe. He expects to return about the middle of October, and to bring with him one hundred Italian queen bees from the apiaries of Professor Mona, at Faido, in the Canton of Tessin. He sent an order in advance for these queens, and has the assurance of Prof. Mona that they will be ready for delivery to him on the fifteenth of September.

This importation will be mainly for Mr. Grimm's own apiaries, in Wisconsin, though, if successful in getting them in, about fifty of the queens will be for sale, and will be sent by express to those ordering them, immediately on his arrival at New York. Bee-keepers desiring to procure imported tested queens should avail themselves of the opportunity thus presented. See Advertisement.

A correspondent informs us that there is little to be found at the Paris Exposition, that would interest a bee-keeper. In one place he saw about twenty straw hives arranged for show, all empty save two, which contained Italian bees. In another place there was a miscellaneous collection of hives and implements—nothing novel among the former and scarcely anything useful among the latter. The bee-keepers of Germany and Switzerland had not sent a single article to the exhibition; and if what was there set out for show, be a fair expression of the present state of bee-culture in France, there is yet ample room for improvement therein in that country.

SEVERAL communications intended for this number of the BEE JOURNAL, were received too late for insertion.

Correspondence.

TONICA, (ILL.,) August 12.

The August number of the BEE JOURNAL came to hand, but the July number I have not had the pleasure of seeing. I say *pleasure*, because it is such to me, and I do not see how it can be otherwise to any person who takes any interest in the culture of bees.

I commenced with bees a few years ago, purely for diversion; but the more experience I have, the more I read and learn in regard to their history, &c., the more I am inclined to the belief that it can be made lucrative, as well as a source of pleasure, to keep bees and to keep "lots" of them—the more the better.

I have always (until quite recently) thought that a locality could easily be overstocked; and have regarded this as the source of so much ill luck. But I find, after reading the BEE JOURNAL for a short time, that I was laboring under a serious mistake; and should have known better had I stopped to reason the matter. The fact is, the honey harvest is of short duration, comparatively speaking, and when "tis" in season there is enough for all, but when there is none to be had none can be got. I now believe that it would be a rare case to find a section of country where the number of stocks kept, has any influence on the quantity of honey gathered by any one.

I would like to inquire of some of your correspondents, the best and most simple plan to unite bees in the fall. A plan that can be practiced by a novice, with no risk of the bees quarrelling.

E. H. MILLER.

SUBLETTE, (ILL.,) August 12.

Enclosed please find two dollars, for which continue my subscription for your valuable paper, which I heartily recommend to all interested in the culture of the bee.

JOHN VANDEWORT.

WEST SPRINGFIELD, (MASS.) August 14.

Enclosed please find two dollars to renew subscription of the BEE JOURNAL. Of all the publications I receive (seven in number) none is more heartily welcomed than the JOURNAL. "Long may it wave."

The season of 1866 was the most unfavorable for bees in this section for very many years; and what stocks survived the winter were very feeble. The spring of 1867 was one of the best seasons I ever knew and bees have done finely. I have had several "virgin swarms"—five swarms issued the 7th, 8th, and 10th of this month; and as buck-wheat is yielding honey in abundance, these have nearly filled their hives with comb, and stored considerable honey. Such swarms are very rare in this section. Bee-keeping is in a low condition in these parts—few persons taking any interest in it.

N. T. SMITH.

STERLING, (ILL.,) 8 mo., 16th.

Being very anxious for the success of the BEE JOURNAL, and the continuance of its pub-

lication; and believing that nothing would conduce so materially to that desired success, as an increase in the subscription list, I forward a small one.

There are quite a number of bee-keepers in this neighborhood, and a rapidly growing interest in the management of bees; and believing, as I do, that the BEE JOURNAL is just what they want to excite that interest, and give them the information necessary for the successful management of bees, I see no reason why the JOURNAL may not have a reasonable support from this part of Illinois, I shall endeavor to obtain it.

D. C. HUNT.

HAMILTON, (ILL.,) August 12.

I have wintered nine hives last winter in the ground, from October 21, till March 16. I did not find ten dead bees per hive. They consumed very little honey, and were all in good condition, without dysentery.

C. DADANT.

APPANOOSE, (ILL.,) August 1.

I have been disappointed repeatedly from bees destroying queen cells, or deserting them or eggs in small boxes, even when they had been kept in the cellar two days. Will some person please inform the readers of the BEE JOURNAL how to overcome this difficulty.

S. C. WILSON.

LEBANON, (ILL.,) August 1.

I trust you will receive sufficient encouragement to induce you to continue the publication of the BEE JOURNAL. I have been greatly profited by it.

F. O. BLAIR.

BLOOMFIELD, (ONTARIO,) 7 mo., 29th.

In answer to "Apis," page 12, Volume 3, plane the top and sides of the top bar of frame; use guide combs; and restrict the space between the frames and honey board to five-sixteenths of an inch. This will generally ensure straight combs, and clear spaces above frames. The comb used for guides should be worker brood comb of the previous year's construction, which will all be of one thickness, and will usually prevent the "uneven thickness" of the cards of comb, so often met with in hives using artificial guides.

G. H. BOWERMAN.

ANNAWAN, (ILL.,) August 16.

MR. EDITOR;—It has been extremely dry here for so long a time, that bees are doing comparatively nothing; and unless we have rain soon, I shall be obliged to feed my bees this fall. It therefore interests me very much to be prepared for winter.

Would the following plan be a good one for wintering bees?

A. Make a box or frame two feet high and twelve feet square. Set it on the ground; then dig out a hole eleven feet by eleven, and three feet deep, throwing the dirt around the box or

frame, to run off surface water. Then stand a post at each end, lay on a pole for a ridge, and poles for rafters, letting these latter rest on the box. Now cover the whole with prairie hay to the thickness of one foot.

B. If this arrangement would answer how many hives could be placed with safety in such a cellar?

W. T.

Will some of our correspondents, who have experience in wintering bees in cellars or clamps, reply to these inquiries?

[For the Bee Journal.]

I wish to ask the bee-men and women, through our Journal, two questions:

First.—Will there generally be a noticeable difference in the markings of workers—from mothers, one of which is a pure Italian queen but mated with a common drone, the other a common queen mated with an Italian drone? My observations leads me to think that those from the common queen will have the poorer markings.

It is well known that Langstroth, in his Circular for 1866, claims as the first or primary excellence of Italian bees "that they gather freely from the second or seed crop of red clover." I had for one season bees from a queen procured from Mr. Langstroth, not one of which was ever seen on red clover. Hence,

Second.—Has any one not raising queens for sale, ever had bees to work freely on red clover?

I wish also to notice an erroneous impression made by an article in the July number of the JOURNAL. In Mr. Bennet's article on Allen's patent hive, in speaking of its movable outside, he says—

"On all other hives, this is a permanent part of the hive, except indeed the top or cover."

Now the American bee-hive has one movable side capable of easy removal, which I think bee-keepers will find as good as, and much less expense than four.

He says further, in speaking of the frames, that "the frames are securely fixed at proper equal distances from each other." So they are in the hive mentioned above, and no iron about them. Mr. Allen's is probably a good hive, but "Honor to whom honor."

J. L. McCUNE.

IPAVA, ILL. Aug. 1867.

Movable sides or ends are no new feature in hives. The Dzierzon, the Berlepsch, and the Cettel hives are thus constructed; and until recently this was the case with all German and French movable comb hives, and the combs or frames could only be moved horizontally. Of late, side opening hives are regarded with less favor, and those having a vertical movement of the combs or frames are being introduced there.

Adjusting the frames firmly at equal distances from each other is a decidedly objectionable plan, and certainly a retrograde movement in bee-culture. It was used, fully tested, and abandoned years ago. [Ed.]

[Translated for the Bee Journal.]

Six Theses on Bee-Culture.

1. Bee-culture is not properly or scientifically advanced by restricting ourselves to breeding, in its purity, any one natural race or variety, however valuable it may be in itself, and though its good qualities be not overrated.

2. The ultimate aim of a truly rational bee-culture should be to produce, breed, and establish an *improved* race or variety. This may be done by availing ourselves of the tendency to variation observable in the natural races; and giving them such direction as will conduce to combine and perpetuate valuable traits, qualities, or characteristics.

3. In making selections for breeding purposes, we should not permit ourselves to be governed or guided exclusively by any prejudices or prepossessions existing in our minds or those of others, in favor of the supposed superiority of any existing natural race or variety, nor by the fine exterior appearance of any individual bee, but solely by an unbiased appreciation of its productive qualities.

4. We should hence reject all rules and principles of breeding designed simply to secure mere purity of race, or the unadulterated perpetuation of any particular variety.

5. Hence, also, we should not foster an exclusive attachment to or preference for any one of the existing natural varieties of the honey bee, such as has hitherto circumscribed the efforts of the more intelligent apiarians, kept them moving in a wrong direction, and prevented them from making any advance towards that most desirable object—the origination and establishment of an improved race or variety.

6. Aware, now, of these facts and of the mistake committed, let the subject be taken in hand anew by those who perceive and appreciate its importance; and by applying the principles of scientific breeding which led to such astonishing results in other branches of rural economy, a similar triumphant result may possibly be achieved in the rearing of bees.

POSTSCRIPT.—The foregoing theses were accompanied by the following note:—

"Enclosed I send an article, respecting the publication of which you will decide. There is nothing new in what I thus desire to say to bee-culturists; but it is certainly high time that the principles of breeding which have long since been established and so advantageously pursued in the case of domestic animals, should also be applied to bee-culture.

It has always seemed to me inexplicable that the splendid results attained by English cattle-breeders, as well as the teachings of Nathusius, Ruff, and others in Germany, could be so utterly unheeded by bee-culturists, and that, in view of the constant activity manifested on every hand by breeders of cattle, sheep, and swine, there should be no real *bee-breeders* found anywhere. Is it not surpassing strange, in these circumstances, that those who raise bees, should confine themselves to simply multiplying stock, pertinaciously adhering to the *one idea* that success in their pursuit is to be attained solely by

anxious efforts to secure purity of breed or race? It certainly cannot be alleged that the principles of breeding relied on in the case of beasts and birds are wholly inapplicable to bees; that the tendencies to variation are less in bees than in other creatures; or that breeding for the quality of productiveness encounters greater difficulty in them than in other domestic animals. Why, indeed, should there be greater or more insuperable difficulties met with in bee-culture, when breeding for productive qualities than for external markings or mere physical conformation?"

A. PATZSHKE.

For the American Bee Journal.

MR. EDITOR:—The German in New York city who advertises gloves for sale, for gentlemen, of bucks-leather—The Yankee who lost the umbrella belonging to a lady, made of silk—Mr. Quinby's pupil who put up a wren box by thrusting a pole into the cavity of a head that formerly contained the brains,—and the correspondent to the BEE JOURNAL, who informs your readers that he has used *mullein stocks*, (instead of mullein tops) for bee-hobs, are supposed to be brothers by one father, whose understanding is perfectly *develed* up, and whose wife's *declinations* have always been *compiled* with his own and son's. His house, as described by Mrs. Partington, is situate upon a verdant *proclivity*, in the rear of which is located his *apilary* of a hundred bees. In front of it, (the house) there is a painted *Pizarro*—a pebbled *lemonade* all around it, and the water for the use of the family, comes rushing from a *never* flowing source of water through a gutta percha *anecdote*.

JASPER HONEYSUCKLE.

MULLEIN GROVE, August 25th, 1867.

P. S. My queens don't lay yet, for I do not find any egg shells before the hives. J. H.

[For the Bee Journal.]

North-Western Bee-Keepers' Association.

Are there to be any Bee-keeping Conventions this year? Could they not be made profitable? It seems to me that much good might result from them.

An effort is being made to have a Bee-keepers' Convention at Lyons, Iowa, at the time of the State Fair. The Fair will be held at that point, during the first week of October. The point is excellent for a large attendance of bee-keepers from both sides of the Mississippi.

Correspondence is being had with many prominent bee-keepers throughout the West, and those heard from so far, are decidedly in favor of the Convention, promising attendance and participation in the discussions. They are all practical and intelligent bee-keepers, and enough will unquestionably be present, to make the discussions interesting and profitable. This is not to be a *State* convention, but a permanent organization of the bee-keepers of the great North-West. The design is to have semi-annual gatherings, if possible, at the most advantageous points. But if they cannot be had so often, then we shall have to be content with one Convention each year. M. M. BALDRIDGE.

ST. CHARLES, (ILL.)

[For the American Bee Journal.]

Bee-Hives.

Mr. Editor:—We are using here, in Essex county, (Mass.) a bee-hive which we consider as near perfect as any ever made. We have tested them for two seasons, and all who are using them are of the same opinion, and think no hive ever made comes so near perfection. These hives are made double with a dead air space of one inch between the outside and the inside hive. We use Langstroth frames in them.

When put into winter quarters, the honey-board is removed and a box three inches deep, fourteen inches wide, and twenty inches long (inside), filled with dry corn cobs, is placed directly over the frames. This makes a good winter passage, for the bees to pass from comb to comb, and the bees can be found at almost any time during the winter, clustered snug to the cobs. Then we make other winter passages through the combs, by boring a hole through the side of the hive, and slowly worming a stick three-fourths of an inch square through each comb to the opposite side of the hive.

Holes should be made in each end of the cap, one inch in diameter, to let off what little steam passes up through the cobs. The cobs will keep in the heat and keep out the cold. Bees wintered in this kind of hive, and in this way, will consume less honey; few bees will die; and the combs will come out in the spring as clean and as dry, and free from mould, as they were the day they were made.

Let any one who doubts my statement, try it for himself, and he will not thereafter put bees in any other kind of hive; and he will say as others say, who are using them, that perfection has been reached in bee-keeping, so far as bee hives are concerned.

Has any one of the readers of the JOURNAL tried my plan for introducing Italian queens, as given in the May number of the JOURNAL? If so I would be pleased to hear the result through the pages of the JOURNAL I have introduced queens to black colonies, with tobacco smoke, in less than twenty minutes time, and had to drive the black one out of an old box at that. If any of the readers of the BEE JOURNAL have a better or safer way, for giving colonies of bees Italian queens, I should like to know how it is done; and I hope they will lose no time in giving it to the JOURNAL.

A bee-keeper in Wenham wintered fifty-one (51) colonies. He now has eighty-three (83,) and a ton of surplus honey. Who can beat this?

He had twelve (12) colonies in the double hives alluded to. All of them swarmed, and made at least fifty pounds of surplus honey each; and some of them a much larger amount. In future he will put bees into no other hive, as he considers this as good as he wants.

HENRY ALLEY.

WENHAM MASS. AUG 12, 1867.

SEND us the names of bee-keepers, with their Post Office address.

[For the American Bee Journal.]

Purity of Italian Queens.

I see in the last JOURNALS communications from A. Grimm and Mrs. E. S. Tupper, with reference to the purity of Italian queens.

I have been engaged in rearing Italian bees for five years, and have purchased queens from quite a number of different parties, most of them of unquestionable integrity, some of them importers; have received queens of good bright colors, tested, and guaranteed; have Italianized my apiary thoroughly two years since; and have exercised great care in breeding.

I have reared about two hundred queens that were fertilized, making it a rule to destroy at sight all queens of questionable color or purity, and must say if Mrs. Tupper, or any body else, can furnish queens that will, from first of May throughout the season, produce eggs from which *invariably* bright queens can be reared without a single instance of a darker shade than the mother, I should like to obtain one.

From the best queen I have bred from, which I have had three years, I have her royal daughters down to the fifth generation, the progeny of which I can handle without scarce a bee leaving the comb, and both mother and progeny are specimens of rare beauty in color. This same queen, as well as her maternal ancestors back to her g. g. grandmother, all produce a majority of bright queens; but a few of them, especially when there was cold unpleasant weather and a scarcity of forage, would vary in shade decidedly from their mother. As far as my experience goes, the weather makes a difference; and I find that this is the opinion of most of the apiarians of the country.

I fully agree with her, however, that hybrids from pure mothers, are fully as profitable as storers of honey, as the full bloods. The best yields of honey have almost invariably been from those stocks whose workers I considered impure; and I have a case that illustrates this. Last year I transferred six swarms of bees for a man in a neighboring town, and introduced two queens, and made two artificial swarms in June. He then reared queens that met common drones, and introduced them into the remaining six swarms, so that he had eight stocks in the fall. These came out in good condition this spring, and the profits from those eight stocks this year, are seven fine swarms, and over five hundred pounds of nice box honey. D. C. HUNT.

NORTH TUNBRIDGE, Vt., Aug. 5th.

Gnadenhütten, (O.) July 26,

Yesterday I sold my honey crop of this summer, and while I am realizing some money from my bee business, I remember, the editor of the BEE JOURNAL. Enclosed you will find two dollars, as my subscription for the 3d volume. The bee business was good with us this summer, both for honey and swarms. We had regular rains, and plenty of white clover, which is our main reliance for honey.

Yours,

SAMUEL TUETLI.